

SEQUENCE LISTING

<110> Japan Science and Technology Corporation

<120> Method for Producing an Antibody with Genetic Immunization

<130> 01F033PCT

<140> PCT/JP01/06371

<141> 2001-07-24

<150> JP2000-222743

<151> 2000-07-24

<150> JP2000-254407

<151> 2000-08-24

<160> 13

<170> PatentIn Ver. 2.1

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<211> 697

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<213> Homo sapiens

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<222> (151).. (600)

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aatcaaaacg ctgattaaaa gaagcacggt atg atg acc aaa cat aaa aag tgt 174
Met Met Thr Lys His Lys Lys Cys

1

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Phe Ile Ile Val Gly Val Leu Ile Thr Thr Asn Ile Ile Thr Leu Ile
10 15 20

gtt aaa cta act cga gat tct cag agt tta tgc ccc tat gat tgg att 270
Val Lys Leu Thr Arg Asp Ser Gln Ser Leu Cys Pro Tyr Asp Trp Ile

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ggt ttc caa aac aaa tgc tat tat ttc tct aaa gaa gaa gga gat tgg	318			
Gly Phe Gln Asn Lys Cys Tyr Tyr Phe Ser Lys Glu Glu Gly Asp Trp				
45	50	55		
aat tca agt aaa tac aac tgt tcc act caa cat gcc gac cta act ata	366			
Asn Ser Ser Lys Tyr Asn Cys Ser Thr Gln His Ala Asp Leu Thr Ile				
60	65	70		
att gac aac ata gaa gaa atg aat ttt ctt agg cgg tat aaa tgc agt	414			
Ile Asp Asn Ile Glu Glu Met Asn Phe Leu Arg Arg Tyr Lys Cys Ser				
75	80	85		
tct gat cac tgg att gga ctg aag atg gca aaa aat cga aca gga caa	462			
Ser Asp His Trp Ile Gly Leu Lys Met Ala Lys Asn Arg Thr Gly Gln				
90	95	100		
tgg gta gat gga gct aca ttt acc aaa tcg ttt ggc atg aga ggg agt	510			
Trp Val Asp Gly Ala Thr Phe Thr Lys Ser Phe Gly Met Arg Gly Ser				
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gaa gga tgt gcc tac ctc agc gat gat ggt gca gca aca gct aga tgt	558			
Glu Gly Cys Ala Tyr Leu Ser Asp Asp Gly Ala Ala Thr Ala Arg Cys				
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Tyr Thr Glu Arg Lys Trp Ile Cys Arg Lys Arg Ile His				
140	145	150		
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<213> Homo sapiens

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Ser Leu Cys Pro Tyr Asp Trp Ile Gly Phe Gln Asn Lys Cys Tyr Tyr
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Phe Ser Lys Glu Glu Gly Asp Trp Asn Ser Ser Lys Tyr Asn Cys Ser
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Thr Gln His Ala Asp Leu Thr Ile Ile Asp Asn Ile Glu Glu Met Asn
      65              70              75              80
Phe Leu Arg Arg Tyr Lys Cys Ser Ser Asp His Trp Ile Gly Leu Lys
      85              90              95
Met Ala Lys Asn Arg Thr Gly Gln Trp Val Asp Gly Ala Thr Phe Thr
      100             105             110
Lys Ser Phe Gly Met Arg Gly Ser Glu Gly Cys Ala Tyr Leu Ser Asp
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Arg Lys Arg Ile His
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Ala Val Glu Ala Thr Gly Glu Lys Val Leu Arg Tyr Glu Thr Phe Ile
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agt gac gtg ctg cag cgg gac ttg cga aag gtg ctg gac cat cga gac 149
Ser Asp Val Leu Gln Arg Asp Leu Arg Lys Val Leu Asp His Arg Asp
      25              30              35              40

aag gta tat gag cag ctg gcc aaa tac ctt caa ctg aga aat gtc att 197
Lys Val Tyr Glu Gln Leu Ala Lys Tyr Leu Gln Leu Arg Asn Val Ile
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 Leu Gly Cys Asn Phe Phe Val Asp Thr Val Val Pro Asp Thr Ser Arg
 75 80 85

atc tat gtg gcc ctg gga tat ggt ttt ttc ctg gag ttg aca ctg gca 341
 Ile Tyr Val Ala Leu Gly Tyr Gly Phe Phe Leu Glu Leu Thr Leu Ala
 90 95 100

gaa gct ctc aag ttc att gat cgt aag agc tct ctc ctc aca gag ctc 389
 Glu Ala Leu Lys Phe Ile Asp Arg Lys Ser Ser Leu Leu Thr Glu Leu
 105 110 115 120

agc aac agc ctc acc aag gac tcc atg aat atc aaa gcc cat atc cac 437
 Ser Asn Ser Leu Thr Lys Asp Ser Met Asn Ile Lys Ala His Ile His
 125 130 135

atg ttg cta gag ggg ctt aga gaa cta caa ggc ctg cag aat ttc cca 485
 Met Leu Leu Glu Gly Leu Arg Glu Leu Gln Gly Leu Gln Asn Phe Pro
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 Tyr Leu Gln Leu Arg Asn Val Ile Glu Arg Leu Gln Glu Ala Lys His
 50 55 60

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Ser Glu Leu Tyr Met Gln Val Asp Leu Gly Cys Asn Phe Phe Val Asp
 65 70 75 80
 Thr Val Val Pro Asp Thr Ser Arg Ile Tyr Val Ala Leu Gly Tyr Gly
 85 90 95
 Phe Phe Leu Glu Leu Thr Leu Ala Glu Ala Leu Lys Phe Ile Asp Arg
 100 105 110
 Lys Ser Ser Leu Leu Thr Glu Leu Ser Asn Ser Leu Thr Lys Asp Ser
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Glu Leu Ser Glu Lys Ser Lys Leu Gln Glu Ile Tyr Gln Glu Leu Thr	
75 80 85	
cag ctg aag gct gca gtg ggt gag ttg cca gag aaa tcc aag ctg cag	339
Gln Leu Lys Ala Ala Val Gly Glu Leu Pro Glu Lys Ser Lys Leu Gln	
90 95 100 105	
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Glu Ile Tyr Gln Glu Leu Thr Arg Leu Lys Ala Ala Val Gly Glu Leu	
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Pro Glu Lys Ser Lys Leu Gln Glu Ile Tyr Gln Glu Leu Thr Arg Leu	
125 130 135	
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Lys Ala Ala Val Gly Glu Leu Pro Glu Lys Ser Lys Leu Gln Glu Ile	
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Ala Val Gly Glu Leu Pro Glu Lys Ser Lys Leu Gln Glu Ile Tyr Gln	
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gag ctg acc cag ctg aag gct gca gtg ggt gag ttg cca gac cag tcc	675
Glu Leu Thr Gln Leu Lys Ala Ala Val Gly Glu Leu Pro Asp Gln Ser	
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Lys Gln Gln Gln Ile Tyr Gln Glu Leu Thr Asp Leu Lys Thr Ala Phe	
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Glu Arg Leu Cys Arg His Cys Pro Lys Asp Trp Thr Phe Phe Gln Gly	
235 240 245	

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 Asn Cys Tyr Phe Met Ser Asn Ser Gln Arg Asn Trp His Asp Ser Val
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acc gcc tgc cag gaa gtg agg gcc cag ctc gtc gta atc aaa act gct 867
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 270 275 280

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 285 290 295

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<222> (118).. (1236)

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atg aag tat ctc cgg cac cgg cgg ccc aat gcc acc ctc att ctg gcc 165

Met Lys Tyr Leu Arg His Arg Arg Pro Asn Ala Thr Leu Ile Leu Ala

1

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10

15

atc ggc gct ttc acc ctc ctc ctc ttc agt ctg cta gtg tca cca ccc 213

Ile Gly Ala Phe Thr Leu Leu Leu Phe Ser Leu Leu Val Ser Pro Pro

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acc tgc aag gtc cag gag cag cca ccg gcg atc ccc gag gcc ctg gcc 261

Thr Cys Lys Val Gln Glu Gln Pro Pro Ala Ile Pro Glu Ala Leu Ala

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tgg ccc act cca ccc acc cgc cca gcc ccg gcc ccg tgc cat gcc aac 309

Trp Pro Thr Pro Pro Thr Arg Pro Ala Pro Ala Pro Cys His Ala Asn

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acc tct atg gtc acc cac ccg gac ttc gcc acg cag ccg cag cac gtt 357

Thr Ser Met Val Thr His Pro Asp Phe Ala Thr Gln Pro Gln His Val

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70

75

80

cag aac ttc ctc ctg tac aga cac tgc cgc cac ttt ccc ctg ctg cag 405

Gln Asn Phe Leu Leu Tyr Arg His Cys Arg His Phe Pro Leu Leu Gln

85

90

95

gac gtg ccc ccc tct aag tgc gcg cag ccg gtc ttc ctg ctg ctg gtg 453

Asp Val Pro Pro Ser Lys Cys Ala Gln Pro Val Phe Leu Leu Leu Val

100

105

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atc aag tcc tcc cct agc aac tat gtg cgc cgc gag ctg ctg cgg cgc 501

Ile Lys Ser Ser Pro Ser Asn Tyr Val Arg Arg Glu Leu Leu Arg Arg

115

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125

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Thr Trp Gly Arg Glu Arg Lys Val Arg Gly Leu Gln Leu Arg Leu Leu

130

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140

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Phe Leu Val Gly Thr Ala Ser Asn Pro His Glu Ala Arg Lys Val Asn
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 Arg Leu Leu Glu Leu Glu Ala Gln Thr His Gly Asp Ile Leu Gln Trp
 165 170 175

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 Asp Phe His Asp Ser Phe Phe Asn Leu Thr Leu Lys Gln Val Leu Phe
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 195 200 205

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 210 215 220

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 Gln Asp His Asp Pro Gly Arg His Leu Phe Val Gly Gln Leu Ile Gln
 225 230 235 240

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 Asn Val Gly Pro Ile Arg Ala Phe Trp Ser Lys Tyr Tyr Val Pro Glu
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 Val Leu Asp Ile Phe Pro Ile Asp Asp Val Phe Leu Gly Met Cys Leu
 290 295 300

gag ctt gag gga ctg aag cct gcc tcc cac agc ggc atc cgc acg tct 1077
 Glu Leu Glu Gly Leu Lys Pro Ala Ser His Ser Gly Ile Arg Thr Ser
 305 310 315 320

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 Gly Val Arg Ala Pro Ser Gln His Leu Ser Ser Phe Asp Pro Cys Phe

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Val Arg Val Val Gly Arg Asn Gly Glu Ser Ser Glu Leu Asp Leu Gln
 110 115 120

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 Gly Ile Arg Ile Asp Ser Asp Ile Ser Gly Thr Leu Lys Phe Ala Cys
 125 130 135

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 Glu Ser Ile Val Glu Glu Tyr Glu Asp Glu Leu Ile Glu Phe Phe Ser
 140 145 150

cga gag gct gac aat gtt aaa gac aaa ctt tgc agt aag cga aca gat 651
 Arg Glu Ala Asp Asn Val Lys Asp Lys Leu Cys Ser Lys Arg Thr Asp
 155 160 165

ctt tgt gac cat gcc ctg cac ata tcg cat gat gag cta tga 693
 Leu Cys Asp His Ala Leu His Ile Ser His Asp Glu Leu
 170 175 180

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 Met Arg Arg Leu Leu Ile Pro Leu Ala Leu Trp Leu Gly
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 Ala Val Gly Val Gly Val Ala Glu Leu Thr Glu Ala Gln Arg Arg Gly
 15 20 25

ctg cag gtg gcc ctg gag gaa ttt cac aag cac ccg ccc gtg cag tgg 207
 Leu Gln Val Ala Leu Glu Phe His Lys His Pro Pro Val Gln Trp
 30 35 40 45

gcc ttc cag gag acc agt gtg gag agc gcc gtg gac acg ccc ttc cca 255
 Ala Phe Gln Glu Thr Ser Val Glu Ser Ala Val Asp Thr Pro Phe Pro
 50 55 60

gct gga ata ttt gtg agg ctg gaa ttt aag ctg cag cag aca agc tgc 303
 Ala Gly Ile Phe Val Arg Leu Glu Phe Lys Leu Gln Gln Thr Ser Cys
 65 70 75

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 Arg Lys Arg Asp Trp Lys Lys Pro Glu Cys Lys Val Arg Pro Asn Gly
 80 85 90

agg aaa cgg aaa tgc ctg gcc tgc atc aaa ctg ggc tct gag gac aaa 399
 Arg Lys Arg Lys Cys Leu Ala Cys Ile Lys Leu Gly Ser Glu Asp Lys
 95 100 105

gtt ctg ggc cgg ttg gtc cac tgc ccc ata gag acc caa gtt ctg cgg 447
 Val Leu Gly Arg Leu Val His Cys Pro Ile Glu Thr Gln Val Leu Arg
 110 115 120 125

gag gct gag gag cac cag gag acc cag tgc ctc agg gtg cag cgg gct 495
 Glu Ala Glu Glu His Gln Glu Thr Gln Cys Leu Arg Val Gln Arg Ala
 130 135 140

ggc gag gac ccc cac agc ttc tac ttc cct gga cag ttc gcc ttc tcc 543
 Gly Glu Asp Pro His Ser Phe Tyr Phe Pro Gly Gln Phe Ala Phe Ser
 145 150 155

aag gcc ctg ccc cgc agc taa gccagcactg agctgcgtgg tgcctccagg 594
 Lys Ala Leu Pro Arg Ser
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 Arg Lys Arg Leu Cys Ser Phe Leu Ile Ala Leu Tyr Cys Leu Phe Ser
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 Leu Tyr Ala Ala Tyr His Val Phe Phe Gly Arg Arg Arg Gln Ala Pro
 25 30 35

gcc ggg tcc ccg cgg ggc ctc agg aag ggg gcg gcc ccc gcg cgg gag 260
 Ala Gly Ser Pro Arg Gly Leu Arg Lys Gly Ala Ala Pro Ala Arg Glu
 40 45 50

aga cgc ggc cga gaa cag tcc act ttg gaa agt gaa gaa tgg aat cct 308
 Arg Arg Gly Arg Glu Gln Ser Thr Leu Glu Ser Glu Glu Trp Asn Pro
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tgg gaa gga gat gaa aaa aat gag caa caa cac aga ttt aaa act agc 356
 Trp Glu Gly Asp Glu Lys Asn Glu Gln Gln His Arg Phe Lys Thr Ser
 70 75 80

ctt caa ata tta gat aaa tcc acg aaa gga aaa aca gat ctc agt gta 404
 Leu Gln Ile Leu Asp Lys Ser Thr Lys Gly Lys Thr Asp Leu Ser Val
 85 90 95 100

caa atc tgg ggc aaa gct gcc att ggc ttg tat ctc tgg gag cat att 452
 Gln Ile Trp Gly Lys Ala Ala Ile Gly Leu Tyr Leu Trp Glu His Ile
 105 110 115

ttt gaa ggc tta ctt gat ccc agc gat gtg act gct caa tgg aga gaa 500
 Phe Glu Gly Leu Leu Asp Pro Ser Asp Val Thr Ala Gln Trp Arg Glu
 120 125 130

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Ala Val Ile Pro Gly Tyr Phe Ser Val Asp Val Asn Asn Val Val Leu	
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Ile Leu Asn Gly Arg Glu Lys Ala Lys Ile Phe Tyr Ala Thr Gln Trp	
165 170 175 180	
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Leu Leu Tyr Ala Gln Asn Leu Val Gln Ile Gln Lys Leu Gln His Leu	
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Ala Val Val Leu Leu Gly Asn Glu His Cys Asp Asn Glu Trp Ile Asn	
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Pro Phe Leu Lys Arg Asn Gly Gly Phe Val Glu Leu Leu Phe Ile Ile	
215 220 225	
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Tyr Asp Ser Pro Trp Ile Asn Asp Val Asp Val Phe Gln Trp Pro Leu	
230 235 240	
gga gta gca aca tac agg aat ttt cct gtg gtg gag gca agt tgg tca	884
Gly Val Ala Thr Tyr Arg Asn Phe Pro Val Val Glu Ala Ser Trp Ser	
245 250 255 260	
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Met Leu His Asp Glu Arg Pro Tyr Leu Cys Asn Phe Leu Gly Thr Ile	
265 270 275	
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Tyr Glu Asn Ser Ser Arg Gln Ala Leu Met Asn Ile Leu Lys Lys Asp	
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Gly Asn Asp Lys Leu Cys Trp Val Ser Ala Arg Glu His Trp Gln Pro	
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